What is claimed is:

1.   A method for numerically analyzing a growth degree of grains on a surface of a semiconductor wafer, comprising:

selecting a numerical target zone in an image file for numerating the growth degree of grains on a specific portion of the surface of the semiconductor wafer, the image file being generated by scanning the specific portion on the surface of the semiconductor wafer using a scanning electron microscopy (SEM);

performing a standardization with respect to an image data of respective pixels disposed within the selected numerical target zone to obtain standardized image data values;

comparing the standardized image data values of the respective pixels with a predetermined threshold value;

counting a number of pixels of which a standardized image data value is greater than the threshold value; and

numerating the growth degree of grains on the surface of the numerical target zone by calculating a ratio of the number of the counted pixels with respect to a number of total pixels disposed within the numerical target zone.

2.   The method of claim 1, further comprising displaying the calculated ratio on a monitor.

3.   The method of claim 1, further comprising, prior to performing the standardization with respect to the image data, employing a smoothing process for smoothing the image data of the respective pixels disposed within the numerical

target zone using an average value of image data of adjacent pixels.

4.   The method of claim 1, wherein the standardization is performed using a following equation:

$$NC_{ij} = \left(\frac{C_{ij} - C_{min}}{C_{max} - C_{max}} \right) \times K$$

wherein, NC_{ij} is a standardized image data value of a pixel disposed at a point (i,j),

C_{ij} a non-standardized image data value of the pixel disposed at the point (i,j),

C_{min} is a minimum value of image data within the numerical target zone,

C_{max} is a maximum value of image data within the numerical target zone, and

K is a constant.

5.   The method of claim 4, wherein the constant K is a number of total gradation of a monitor.

6.   The method of claim 1, wherein the image file includes an image data obtained by scanning a growth state of hemispherical grains (HSGs) grown on a surface of a capacitor.

7.   The method of claim 6, wherein the scanning is performed on a cylinder stack (OCS) – type capacitor.

8.   The method of claim 7, wherein the scanning of the numerical target of the growth degree of grains includes scanning sidewalls of the OCS-type capacitor.

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9.   A method for numerically analyzing a growth degree of grains on a surface of
a semiconductor wafer, comprising:

displaying an image on a monitor, the image being obtained by scanning a
specific portion of the surface of the semiconductor wafer using a scanning electron
microscopy (SEM);

manually selecting a numerical target zone in the displayed image in order to
numerate the growth degree of grains on the specific portion of the surface of the
semiconductor wafer;

performing a standardization with respect to an image data of respective
pixels disposed within the selected numerical target zone to obtain standardized
image data values;

comparing the standardized image data values of the respective pixels with a
predetermined threshold value;

counting a number of pixels of which a standardized image data value is
greater than the threshold value; and

numerating the growth degree of grains on the surface of the numerical
target zone by calculating a ratio of the number of the counted pixels with respect to
a number of total pixels disposed within the numerical target zone.

10.   The method of claim 9, wherein before manually selecting the numerical
target zone, further comprising forming mesh lines dividing a screen of the monitor
into a plurality of sub areas over the displayed image, thereby enabling an operator to
select at least one sub area as the numerical target zone.

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